Richard Kha

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 Richard Kha | kRichard32

Toronto, Ontario, Canada

RESEARCH EXPERIENCE

- **Optimizing remote JIT compilation for the JVM**   *May 2024 - August 2024*
  Undergraduate researcher
  - Developed benchmarking tools to measure the speed of the JITServer
  - Implemented scheduling algorithms in order to improve the performance of the JITServer
  - Created a scheduling algorithm which reduces client runtime by up to 9% in high load senarios
  - Co-wrote the **paper** on our findings and performed an oral presentation at HotInfra '24
  - Done in collaboration with IBM CAS

- **Automating Data Analysis for Enhancing ASD Therapy Sessions**   *September 2024 - December 2024*
  Undergraduate researcher
  - Implemented a diarization model from a recent paper in order to improve diarization accuracy
  - Conducted tests on diarization models in order to determine change in diarization quality
  - Created an improved version of the diarization model with increased accuracy in the child-adult speech scenario
  - Implemented an algorithm to create transcriptions with speaker labels more accurately given imperfect diarization and transcription
  - Wrote a brief **report** on our findings

EDUCATION

- **University of Toronto**   *September 2021 - August 2025*
  B.Sc. in Computer Science (Honours)   Toronto, Canada
  - GPA: 3.95/4.00
  - Relevant coursework: Data Structures & Analysis, Algorithm design & Analysis, Operating Systems, Introduction to Databases, Introduction to Image Understanding, Knowledge Representation & Reasoning, Neural Networks & Deep Learning, Capstone Design Project

PEER-REVIEWED WORKSHOP PUBLICATIONS

[1]   R. Kha, N. Sreekumar, A. Khrabrov, E. de Lara, A. Brown, M. Gabel, M. Pirvu. (2024). **Towards Optimal Remote JIT Compilation Scheduling for the JVM**. 2nd Workshop on Hot Topics in System Infrastructure (HotInfra 2024) held in conjunction with SOSP 2024. November 2024.

PROJECTS

- **Bumblebench for JITserver benchmarking: [Tools used for JITServer benchmarking]**   *May 2024 - September 2024*
  Tools: [Python, Java, Docker, JSON]   []
  - Developed scripts in order to run benchmarks on a JITServer under high load
  - Used Docker to containerize and limit the JITServer
  - Used JSON files to create configurations for the JITServer
  - Developed scripts in order to produce graphs to analyze performance of the JITServer

- **Capital City: [A monopoly clone]**   *October 2022 - December 2022, July 2023 - October 2023*
  Tools: [Java, Java Swing, Gradle]   []
  - Developed a clone of monopoly
  - Implemented graphics, sound, game play, etc.
  - Implemented multiplayer via sockets and a server
  - Implemented concurrency mechanisms
  - Implemented persistance mechanisms

- **Capital City Server: [A server for the Capital City application]**   *September 2023 - October 2023*
  Tools: [Java]   []
  - Developed a server that can connect to capital city clients in order to facilitate multiplayer experience

◦ Networking is done via sockets

- **Crazy Minigames: [A rhythm game and fighting game application]** *March 2021 - July 2021, May 2023 - June 2023*
  Tools: [Java, JavaFX] [O]
  ◦ Developed a fighting game and rhythm game in a single application

  ◦ Implemented graphics, sound, game play, etc.

- **Custom Tetris: [A modern tetris clone]** *January 2020 - February 2020, February 2024 - February 2024*
  Tools: [Java, JavaFX] [O]
  ◦ Created a clone of Tetris which implements modern Tetris gameplay features

  ◦ Implemented graphics, sound, game play, etc.

VOLUNTEER EXPERIENCE

- **Coding/Math Tutor** *August 2021 - Present*
  YDC - Youth Dream Canada [⊕]
  ◦ Mentored students in a 1 on 1 setting in computer science and math

  ◦ Developed skills in teaching others more effectively and clearly

- **Rcognized Study Group Leader** *September 2022 - December 2022*
  University of Toronto
  ◦ Set of meetings and coordinated a study group for MAT237 (Multivariable Calculus with Proofs)

  ◦ Developed stronger presentation and communication skills

HONORS AND AWARDS

- **Undergraduate Student Research Award (USRA)** *May 2024 - September 2024*
  Natural Sciences and Engineering Research Council of Canada (NSERC) [⊕]
  ◦ Award to support summer research done in 2024

- **The Friends of Victoria University Library Scholarship** *September 2023*
  University of Toronto [⊕]
  ◦ Awarded to students who achieved overall A standing in second year

- **Margaret Slater Scholarship from the Senate of Victoria University** *September 2022*
  University of Toronto [⊕]
  ◦ Awarded to students who achieved overall A standing in first year

- **University of Toronto Scholars Award** *September 2021*
  University of Toronto [⊕]
  ◦ Awarded to outstanding secondary school students on admission